



## Management and use of wild animals

Sandøe, Peter; Christiansen, Stine Billeschou; Holst, Bengt

*Published in:*  
Ethics of animal use

*Publication date:*  
2008

*Document version*  
Publisher's PDF, also known as Version of record

*Citation for published version (APA):*  
Sandøe, P., Christiansen, S. B., & Holst, B. (2008). Management and use of wild animals. In *Ethics of animal use* (pp. 153-164). Blackwell Publishing.

## Management and Use of Wild Animals<sup>1</sup>

*P. Sandøe & S. B. Christiansen.*

*Co-author: Bengt Holst, Scientific Director, Copenhagen Zoo, Denmark*

The animals which are the focus of this chapter differ in an important respect from those discussed in previous chapters: living and breeding without human interference, they are the products of natural evolution. They are *wild animals*. But if wild animals live independently of us, why examine them in a book about animal *use*? There are two reasons for this.

The first reason is that, throughout human history, man has made use of wild animals. We have fished for, trapped and hunted wild animals to acquire food and non-food products like fur. Wild animals have also been a source of entertainment. Since ancient times they have been on display in circuses and markets. In more recent times, zoos and wildlife parks have developed in large numbers, and it has become common for ordinary people to keep wild animals such as fish, birds, and reptiles.

The second reason for bringing wild animals into a discussion of animal use is that, increasingly, they are not just left to live their own lives. In fact it seems fair to say that the human desire to conquer wild nature has been all too successful, since many wild species have become extinct, and even more are believed to be endangered. In reaction to this, a nature and wildlife protection movement has grown over the last 200 years. Often this protection will take the form of active management, with some species being controlled in order to allow other species to prosper.

From the point of view of animal ethics, an important shift of focus typically takes place when wild animals are on the agenda. In discussions of the protection of domestic animals the focus is normally on the *individual animals*. When it comes to wild animals, however, the focus is typically on the *species* or on a *population*. What often seems to matter here is that a sufficient number of animals survive in the wild and produce offspring. Whether individual animals or groups have a tough time often matters less – and indeed may sometimes even be seen to make a positive contribution by applying the right kind of selective pressure on the species as a whole.

---

<sup>1</sup>This text is an excerpt from Chapter 10 of:

P. Sandøe & S. B. Christiansen (2008): *Ethics of animal use*. 1. Edition. Chichester, United Kingdom. Wiley-Blackwell. The definitive version is available at

<http://eu.wiley.com/WileyCDA/WileyTitle/productCd-140515120X.html>

So what are our responsibilities to individual wild animals? How should we balance the different, potentially conflicting ethical concerns? These are the questions to be discussed in this chapter. To begin with it will be asked how human approaches to the treatment and management of wild animals have evolved through history.

## **Developments in human relations with wild animals**

In prehistoric times, when humans were mainly living as hunters and gatherers, wild animals seem to have been more than a source of food and fur – as is witnessed by cave paintings and rock carvings. One may speculate that at least some wild animals were then regarded with a degree of reverence.

Early human cultures based on hunting contributed to the local extermination of some animal species, although this seems to have been more of an exception than the general rule. With the development of cultures based on agriculture, the human impact on wildlife became much greater, mainly because humans were successfully competing with wild animals for land. Some predator species were hunted down, because they were seen as a threat to farm animals. For instance, the wolf once had a wider distribution than any other land mammal except man. Due to systematic hunting, however, by 1950 the grey wolf was wiped out across most of its natural habitat. It has survived only in areas of the northern hemisphere sparsely populated by humans.

In early Christian culture little reverence for wild animals remained. The mainstream attitude within Christian culture, as described in Chapter 1, has been, first, that animals are there for us to use as resources; and, second, that wild nature is something dark and frightening that should as far as possible be cultivated. Paradise, to the Christian mind, is a cultivated garden, not a wilderness. Of course, there is a belief within Christianity that wild nature deserves protection because it is part of God's creation. However, this idea seems in practice to have had limited influence. Also, many of the changes in the wildlife habitats were gradual and therefore barely noticed; and there always seemed to be large areas of nature left to which wildlife could retreat.

The idea of systematic protection of the natural world, including wild animals, first developed in North America. Whereas our impact on nature was slow in Europe, in North America the effects of human activity on wildlife and other parts of wild nature, following colonization, were rapid and vast. For example, the passenger pigeon which inhabited North America in billions around 1800 became extinct in a little more than a hundred years, and a similar fate nearly befell the bison.

In the 1800s the idea of establishing national parks where wild nature could be protected therefore developed. Such parks were established on a huge scale in the late 1800s and early 1900s. Later national parks spread to Africa, Australia, Asia, and Europe. However, those involved in initiatives to create national parks and in other ways protect wild nature did not fully agree over the goal of nature protection. From the beginning there were two main approaches: *wise use of nature* and *preservation (protect nature from use)*. (In North America the term “conservation” is often used as a synonym of wise use. However, in other parts of the world it often covers both wise use and preservation. To avoid confusion about the terminology the term “conservation” will be avoided.)

The idea of wise use appeals to our self-interest. However, sometimes the issue may rather be that we affect the interests of future people. Underlining the notion that we should control our use of wildlife and other renewable resources to allow future generations to obtain their share, the idea of wise use has developed into the idea of sustainable use. This idea received its most influential statement by an international commission headed by the former Norwegian prime minister Gro Harlem Brundtland. According to this commission, sustainable use is part and parcel of sustainable development, which is a “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987, p. 43).

The two approaches – wise or sustainable use and preservation – are united in their opposition to the unthinking marginalization or destruction of wildlife. But when it comes to the actual management of wildlife and nature, the two approaches differ. For the wise or sustainable use approach, the aim is to accommodate man’s continuous use of wild nature as a resource for food, timber and other raw materials, and for recreation. Approaches to management that enhance nature’s yield as a resource are very welcome. For the preservationist, on the other hand, the aim is, as far as possible, to bring nature back to the state it was in before humans started to interfere, and then to allow it to develop on its own with as little interference from humans as possible. The only use that humans should make of nature is to enjoy it from a distance.

One practice, which continues to give rise to controversy between the two approaches, is recreational hunting. On the wise use approach, the active management of game should be encouraged. This can include the control of predators, the release of young animals (sometimes of species that are not native to the area in question), and feeding during some periods of the year. In this way, it is claimed, a healthy population of game can be maintained. Hunters, who own the right to shoot the game in some locations, will both benefit recreationally and bring home resources such as food and fur. Moreover, they will have a strong incentive to maintain the area of nature for which they are responsible, assuming they want to make use of the area in the future.

On the preservation approach, on the other hand, this kind of practice goes against the whole idea of nature protection. It applies artificial, selective pressure in favour of game species, some of which may even be non-native. Hence it fundamentally disturbs the balance which it is the aim of nature protection to achieve. Of course, even on the preservation approach the shooting of animals may sometimes be seen as a necessity. It may be that there is a lack of predators to maintain the (perceived) natural balance, and that this can be redressed by judicious use of control methods. But hunting should then be planned with preservation goals in mind, and it should ideally be carried out by professionals.

Even though the two approaches to nature protection differ in their end goals, they have in practice been able largely to unite in a shared effort to limit the devastation of nature that has occurred globally over the past century or so. In 1900 nature protection was basically a local affair. But it has gradually become clear that the roots of many of the problems affecting wild nature are more complex and of a much larger scale, and that solutions will require a global, long-term approach.

One important development is the rise of the modern environmental movement, the origin of which can be dated to 1962 when the American biologist, Rachel Carson (1907-1964), published *Silent Spring*. The title of the book depicts a situation where no birds sing in the spring because they have all vanished as a result of pollution, the use of pesticides and similar causes. Pesticides can accumulate via the food chain and spread far beyond the point at which they are released. For instance, DDT and other chemicals once widely used may accumulate via the food chain in polar bears and birds of prey living in the arctic region, thousands of kilometres away from where these chemicals were originally used. Some researchers suspect that these chemicals can seriously damage the reproductive ability of animals, and in the long run threaten their survival.

In the beginning, the environmental movement stood in stark opposition to strong political and economic interests. However, gradually the messages of the movement gained public support and were appropriated by the economic and political establishments. Today in most industrialised countries the use of pesticides and other agrochemicals is regulated, and use of the most harmful pesticides, such as DDT, has long been banned in agriculture. Moreover, organic production – where farming of crops for food, feed and other products is done without the use of synthetic fertilizers, pesticides, herbicides or fungicides – is expanding all over the world.

Most recently there has been a shift in the environmental movement towards a focus on energy use and its effect on the climate. The world is becoming warmer, and this is having severe effects on living conditions both for people and wildlife. Again, polar bears are a primary focus. It is feared that, with global warming, their natural habitat will diminish dramatically.

A parallel development has been a growing international focus on the protection of biodiversity. Wild animal populations do not respect national borders – they are typically spread across several countries. Starting in the 1940s, international collaboration to protect wild nature has developed. To begin with such collaboration mainly assumed the wise use approach. It aimed to protect nature as a renewable resource. However, since the 1970s, there has been rising concern about the preservation and protection of biodiversity in itself, i.e. as something with its own intrinsic value. In 1992 an international Convention on Biological Diversity was signed by 150 government leaders. Here it is asserted that the conservation of biological diversity is “a common concern of humankind” (United Nations 1993, p. 143).

An international organisation with headquarters in Geneva (the IUCN, or World Conservation Union) regularly publishes so-called “red lists” in which the statuses of endangered animals and plants are listed. On the 2006 list the status of 40 000 species, subspecies, varieties, and even selected subpopulations are assessed. These lists help policy makers to decide which species are most in need of protection. Through international agreements, countries are assigned responsibilities for the protection of specific species. This system has not stopped the decline in wildlife, but it has put a global focus on the status of wild organisms, and in that way it has facilitated the process of preserving nature.

A special problem in the protection of wildlife is the trade in animals and animal products. For various reasons there is a big international market for wild animals and associated products. This market includes eggs from rare birds, live reptiles, birds and mammals, ivory, and various other products.

A well known example is rhino horn. In the Yemen, in the Middle East, the horn is used to make handles for ceremonial knives, called “jambiyas”, which are worn by young men. After the oil crisis in the 1970s, oil prices climbed and the wealth of people living in the Yemen rose. This led to a vast increase in the demand for rhino horn. The consequences for the black rhino in Africa were devastating. In 1970 an estimated 65 000 black rhinos could be found throughout sub-Saharan Africa, but during the following decades most of them were killed by poachers. Around the year 2000 there were fewer than 2500 left.

To contain the negative effects of international trade on wild nature, a Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was prepared in the 1970s and later signed by most countries around the world. Again, many countries make a great effort to back up their commitment to nature protection by setting up special police units with the sole duty of controlling imports and sales of animals and plants belonging to endangered species.

One reason for the growing support for wildlife protection – not least in rich Western countries – has been the highly successful campaigning and lobbying by international non-governmental organisations such as the World Wide Fund for Nature (WWF), Friends of the Earth, Greenpeace, and the International Fund for

Animal Welfare (IFAW). These organisations have not only raised public awareness of the need for wildlife protection but in some cases also managed to steer the agenda away from wise use and towards either preservation or a focus on the protection of wild animals from cruelty.

This is clearly seen in debates about the protection of sea mammals. When the International Whaling Commission (IWC) was set up after the Second World War to regulate the hunting of large whales, the main aim was to ensure that whale species were not depleted – i.e. that they would be restored and maintained at a level that would allow whaling in the future. However, the majority of IWC members increasingly turned towards the idea of banning all commercial whaling. A ban was implemented in 1986. It has not been lifted since – even for populations of whales that by scientific standards seem to be able to tolerate a controlled hunt.

With whales, animal welfare issues – relating to killing methods – also became an issue. And with another group of sea animals, seals, animal welfare became *the* dominant issue. Since the 1960s there has been ongoing public debate about the killing of so-called baby seals by clubbing in the northern parts of Canada.

The debate kicked off in the 1960s and 1970s. It was promoted by very efficient use of the mass media by those who were against the killing of seals. Newspapers reported stories and published pictures of what were depicted as brutal murders of cute baby seals with large dark eyes. At the same time, the newspapers carried advertisements with graphic images and very emotional supporting texts covering entire pages. The campaign was also supported by celebrities of the time, including the French film actress Brigitte Bardot (b. 1934). The arguments of those campaigning against seal hunting were, and still are, a combination of claims about the cruelty of the killing and a strongly negative aesthetic appeal. The campaign seems to have worked: in 1983 the EEC (now the EU) implemented a ban of baby seal fur imports which is still in effect. A side-effect of the campaign was a drop in prices on all seal products. This has had a dramatic negative effect on arctic communities for which seal hunting was a major source of income.

Clearly, over the last few centuries there has been a dramatic change in our relations with wild animals. Three key ideas – of wise or sustainable use, preservation, and animal welfare – continue to play a role in discussions concerning the use and management of wild animals. This, of course, gives rise to dilemmas: for instance, between sustaining human livelihood and the preservation of some species, or between protecting the well-being of the individual animal and protecting the species. Some of these dilemmas will be discussed later in this chapter. First, however, a little more needs to be said about the ethical perspective called “respect for nature” briefly presented in Chapter 2. This perspective grows out of the idea of preservation. Unlike the other ethical perspectives explored, it has not been very prominent in previous chapters, all of which have focused on domestic animals.

## Respect for nature – extending the concern?

When it comes to the topic of nature and wildlife, the three main ethical views discussed in previous chapters – contractarianism, utilitarianism and the animal rights position – seem to share a very important assumption. All assume that it is only individual sentient beings that matter ethically in their own right and have inherent *moral standing*. None would ascribe intrinsic value, let alone moral rights, to plants, habitats or species as such. Entities such as these only matter because, and in so far as, they matter to relevant sentient beings.

In contractarianism, to have moral standing a being must be able to enter into some kind of agreement with another being. Only contractors have moral status. Essentially this means that only human beings (and indeed, only some of them) have moral standing. The two other views disagree with this – they *extend* the ascription of moral standing to all humans as well as to some animals. Utilitarians claim that it is the ability to feel pleasure and pain that confers moral standing. From the animal rights perspective, what matters is that a being is subject of a life. In practice the two views will not differ much over which beings are owed moral consideration.

The main point here is that these three ethical outlooks agree that entities that are not sentient have no inherent moral standing. However, this may run counter to intuitions many people may have about our moral obligations to living beings that are probably not sentient. For instance, if you see someone stepping on a flower for no good reason, you may feel that something wrong is being done. Of course, this feeling may have to do with the aesthetic value that you, and other potential spectators, attribute to the flower. But perhaps this is not the whole story: some may feel that it is wrong to step on the flower, even if it is not seen or is going to be seen by anyone who will appreciate its beauty – that this kind of act is in itself morally objectionable.

The American philosopher Paul Taylor feels precisely this way, and so strongly that he has developed a theory in which moral standing is extended to all living entities. He claims that we should measure the rightness of actions, and assess the moral quality of a person's character, according to whether or not he or she expresses what he calls "respect for nature". The idea is that we as humans try to see the world from a point of view where we consider what is good and bad for all living beings affected by what we do:

Concerning a butterfly, for example, we may hesitate to speak of its interests or preferences, and we would probably deny outright that it values anything in the sense of considering it good or desirable. But once we come to understand its life cycle and know the environmental conditions it



needs to survive in a healthy state, we have no difficulty in speaking about what is beneficial and what might be harmful to it. [...] Once we acknowledge that it is meaningful to speak about what is good or bad for an organism as seen from the standpoint of its own good, we humans can make value judgements from the perspective of the organism's life, even if the organism itself can neither make nor understand those judgements. All of the foregoing considerations hold true of plants as well as animals. (Taylor 1986, pp. 66-67)

So stepping on the flower damages the flower, and just as you should not damage or harm humans and animals without good reason, you also ought not to damage plants – as far as possible. The last clause is important. As the realm of beings to which we owe moral concern widens, it becomes more difficult to avoid doing things that will have a negative impact on beings to whom, or to which, we owe moral concern. If we are not permitted to kill animals for food, we can become vegans; but it is not really an option to stop eating plants. Those who try to live lives in harmony with the idea of respect for nature will have to accommodate trade-offs.

The Norwegian philosopher Arne Næss (b. 1912), known as the founder of the philosophy, and the modern movement, of deep ecology, has expressed a view similar to Paul Taylor's in order to cater for this challenge:

... Biospherical egalitarianism – in principle. The “in principle” clause is inserted because any realistic praxis necessitates some killing, exploitation, and suppression. (Næss 1973, p. 95)

That is to say, all living beings *should* be treated as equals, but if some individuals are to survive and lead decent lives, it is necessary in practice to sacrifice others. However, both Taylor and Næss insist that there is a big difference between saying that some living beings, such as plants, have no moral standing and therefore can be used as we please, and saying that the moral standing of some living things, such as food plants, is such that in certain (admittedly, quite common) circumstances their exploitation and killing can be morally defended.

### ***Individualism versus holism***

It might be argued that there is something strange about trying “as far as possible” to protect all individual plants. The problem is the elasticity, and the extendability, of the notion of possibility here. Suppose you are tending a garden. The question is then not really *whether* you should protect plants, but *which* plants you should protect. If you do nothing, you will let weeds take over, and if you weed, you allow other plants to survive and thrive. So the issue is not really about protecting or not protecting individual plants, but about

the whole garden you are managing. Whatever you do you will harm plants in large numbers; the choice remains between creating or maintaining a certain kind of cultivated garden, or allowing it to become a wilder, weedier, “natural style” garden.

This kind of thinking has actually led most influential proponents of respect for nature to give up the idea of nature protection as an extension of the concern for individuals. Rather they now claim that we should not be concerned about individual organisms when we are concerned about nature. We should look at collective entities such as species, biotopes, and ecosystems. This approach is evident in the following passage by American philosopher J. Baird Callicott (b. 1941):

Animal liberationists claim to be philosophical radicals, but animal rights is just one more step on the liberal continuum, whereas the Leopold land ethic, because it attributes pre-eminent importance to the health of ecosystems, is a point off of this individualistic continuum. (Callicott 1980, p. 313).

So, according to Callicott, the radically new feature of the idea of respect for nature is that it is not individualistic: that is, it is not concerned primarily with protecting individuals, but focuses on the protection of higher level entities of which individuals are only transient elements. Callicott does not claim to have invented this idea. He in fact builds on the writings of the forester, and father of modern wildlife management in the United States, Aldo Leopold (1887-1948). Leopold’s ideas about the overall strategy of nature management are laid out in his so-called “land ethic”:

The ‘key-log’ which must be removed to release the evolutionary process for an ethic is simply this: quit thinking about decent land-use as solely an economic problem. Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise. (Leopold 1949, p. 262)

But if individual plants only matter in so far as they contribute to the maintenance of a larger whole of some kind (the biotic community, the land, the ecosystem), what then about individual animals and individual humans? Do they also, in the respect for nature approach, only matter in so far as they contribute to maintaining and protecting nature? In an influential early paper by Callicott a positive answer to this question is affirmed:

Modern systems of ethics have, it must be admitted, considered the principle of the equality of persons to be inviolable. This is true, for example, of both major schools of modern ethics, the utilitarian school going back to Bentham and Mill, and the deontological, originating with Kant. The land ethic manifestly does not accord equal moral worth to each and every member of the biotic community; the moral worth of individuals (including, take note, human individuals) is

relative, to be assessed in accordance with the particular relation of each to the collective entity which Leopold called “land”. (Callicott 1995, p. 47)

In this view, then, individuals really do not matter in their own right. Whether they are human or not, they matter only to the extent that, and only when, they help to maintain the wholes of which they are parts. There is here a certain similarity to utilitarianism where the individual only matters to the extent that she, he or it contributes to the total sum of welfare. However, there is also the important difference that what matters from the utilitarian point of view is welfare; and welfare is also what matters to individuals. So according to the utilitarian view one may disregard individuals for the sake of other individuals, whereas in Callicott’s opinion individuals may be sacrificed for the sake of a collective entity.

To make this point vivid, Callicott argues in the same essay that the human population on earth ought to be reduced in size so that human numbers are the same as those of bears.

No wonder this gave rise to strong reactions! Tom Regan, the leading proponent of the animal rights view, labelled Callicott’s view “environmental fascism” (1988, p. 362). The analogy is here with the Nazi regime, which notoriously claimed that individuals must be sacrificed for the sake of the higher goal of maintaining the nation.

In later essays Callicott has retreated from his earlier position. Now, like nearly all the other advocates of the respect for nature approach, he thinks the protection of nature should not generally override respect or concern for the individual human or animal, but rather should be seen as an addition to traditional, individualistic ethics. However, if the protection of nature matters, dilemmas between nature protection and respect for individuals will continue to arise.

There are many real life examples of such dilemmas, for example: as mentioned earlier, DDT used in other parts of the world spreads via food chains as far as the arctic areas. There may, therefore, be a choice to be made between protecting wildlife in non-tropical areas by campaigning for a total ban on DDT and promoting the use of DDT as a means to fight malaria. It has been argued by medical doctors and health officials that attempts to ban DDT globally have setback the fight against malaria in the tropics. The claim is that the success of attempts by environmental groups to protect wildlife in non-tropical areas through campaigns against DDT have cost hundreds of thousands human lives.

Similarly, nature protection and animal welfare may compete with one another. The most effective methods of eradicating feral animals (e.g. rabbits in Australia or minks in northern Europe) to protect local nature from “invasion” by imported species may be problematic from the point of view of animal welfare. Poisoning, trapping and shooting all year round, even when the animals have offspring, may be efficient means of controlling invasive species, but they bring about considerable animal suffering.

Therefore, a credible version of the respect for nature approach will have to indicate how nature protection is to be balanced against the needs, interests, and rights of individual humans and animals.

### ***What is nature?***

One question raised by the respect for nature position – a question was touched upon in Chapter 9 – is absolutely fundamental: what *is* nature? One way to approach this question is by trying to describe the opposite of nature. Few would dispute the assertion that wild animals that inhabit rainforests, savannas, and seas, and have done so for thousands or millions of years, are part of nature and worth protecting. If it is animals such as these that define “nature”, the opposite of nature seems to be culture. Nature can be defined then, roughly, as that which is untouched by humans.

On this view, animals that have not been domesticated and do not live where they do as the result of human interference are natural. This is a relatively clear and intuitively plausible way of thinking about the natural realm. It also makes good sense of the kind of protection of untouched nature that takes place in many parts of the world. However, it certainly does not fit the situation in areas, like Europe, that have been under human control for thousands of years. In these areas it is hard to find parts of nature that are untouched and unaffected by human activity. The landscapes protected in nature conservation schemes are often old cultural landscapes, such as grazed meadows, moors, and certain forms of woodland endangered by urbanization and developments in agriculture and forestry. Even though many of the animals living here are genuinely wild, they have nevertheless co-evolved with humans and have at best a rather dubious claim to be creatures of a kind untouched by man.

At this point it must be asked why, from a philosophical point of view, only that which is untouched by man should be counted as natural. Is man not also an animal, and are not the effects of man’s activities also part of the natural ecosystem? And the idea that we are in some sense separated from nature, is that not really a residue of dualistic thinking that goes back to ancient philosophy, and which has had a strong influence on Christianity, but which really has no place in an enlightened, modern world view? These are truly mind boggling questions, and no attempt shall here be made to answer them.

It will suffice to say that there are many different conceptions of nature. Nature may be defined as that which is untouched by man; or it may be defined in a way that ensures that an animal or plant is natural, and therefore according to the view of respect for nature worth protecting, even though its association with human activity is undeniable. The latter view will allow, or even oblige, us to protect not only “genuinely” wild animals and the ecosystems and landscapes to which they belong, but also cultural landscapes and the creatures that live there.

Regarding domestic animals there is, as mentioned in the previous chapter, a real issue about breeds of domestic animal that are under pressure from the tendency of modern farm animal breeding to focus on a few breeds. For example, in Norway, until the early 1970s, there were more than 20 local breeds of dairy cattle, each with a distinct phenotype. Only one of these breeds was the focus of intensive breeding, and this is now the only one breed left in commercial milk production. Should these old breeds be maintained, not only for the sake of future breeding, but also in their own right? From the perspective of respect for nature, the answer to this question clearly depends on how nature is defined.

## Further reading

Armstrong, S.J. & Botzler, R.G. (eds.) (2003) Part 7: Ethics and wildlife; Part 8: Zoos, aquariums, and animals in entertainment. *The Animal Ethics Reader*. Routledge, London and New York.

Callicott, J.B. (1980) Animal liberation: A triangular affair. *Environmental Ethics*, 2, 311-338.

Callicott, J.B. (1989) *In Defense of the Land Ethic: Essays in Environmental Philosophy*. State University of New York Press, Albany.

Callicott, J.B. (1995) Animal liberation: A triangular affair. In: *Environmental ethics*. (ed. R. Elliot), pp. 29-59. Oxford University Press, New York.

Cartmill, M. (1996) *A View to a Death in the Morning: Hunting and nature through history*. Harvard University Press, Cambridge, MA.

Des Jardins, J.R. (1997) *Environmental Ethics*, 2nd edn. Wadsworth, London.

Leopold, A. (1949) *A Sand County almanac with essays on conservation from Round River*. Ballantine Books, New York.

Norton, B., Hutchins, M., Stevens, E.F. & Maple, T.L. (1995) *Ethics on the Ark: Zoos, Animal Welfare and Wildlife Conservation*. Smithsonian Institution Press, Washington, DC.

Næss, A. (1973) The shallow and the deep, long range ecology movements: A Summary. *Inquiry*, 16, 95-100.

Regan, T. (1988) *The Case for Animal Rights*. Routledge, London

Rolston, H. (1988). *Environmental Ethics: duties to and values in the natural world*. Temple University Press, Philadelphia.

Taylor, P. (1986) *Respect for nature*. Princeton University Press, Princeton, NJ.

Thompson, P. (1995) *The Spirit of the Soil. Agriculture and environmental ethics*. Routledge, London and New York.

United Nations (1993) *Multilateral Convention on biological diversity (with annexes) – Concluded at Rio de Janeiro on 5 June 1992*. Treaty Series No. 30619, United Nations, New York.

WCED (1987) *Our Common Future*. World Commission on Environment and Development. Oxford University Press, Oxford.